COMMONWEALTH of VIRGINIA

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MEMORANDUM

To: District Directors

From: John V. Rullan, M.D., M.P.H.
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Subject: VDH Post-exposure prophylaxis guidelines to Occupational HIV exposure

Included are the guidelines re: post-exposure prophylaxis (PEP) to HIV exposure in VDH employees. These guidelines follow the CDC's MMWR article "Update: Provisional Public Health Service Recommendations For Chemoprophylaxis After Occupational Exposure to HIV" published June 7, 1996.

If an employee is identified as eligible for PEP and decides to accept PEP, the Health District will provide the initial treatment of the employee, including the initial supply of the PEP medication. As soon as possible, the employee should be referred to his Primary Care Physician for subsequent follow-up and treatment (see Table 3, page 6). Please be aware that each district will be responsible for the cost of the initial supply of medications, as well as any costs such as prescription and laboratory co-pays not covered by the exposed employee's health insurance carrier.

The Workmen's Compensation policy does not include prophylactic treatment. The occupational exposure is to be documented so that if HIV infection does occur prospectively and no other risk factor can be attributed, then the employee could be eligible for the compensation benefit.

Virginia Department of Health Post-exposure Prophylaxis Guidelines for Occupational HIV Exposure

The following guidelines are intended solely for the use of Virginia Department of Health employees. Private and other agency employees need to use the administrative channels available to them through their agency/employer.

The risk to health care providers who are parenterally exposed to human immunodeficiency virus (HIV) is estimated at 0.3% (1 infection per 310 exposures)[1]. Two important risk factors that contribute to predicting a seroconversion among those health care providers parenterally exposed include the **attributes of the exposure** and the **attributes of the source patient[2].** In a recent casecontrol study conducted by the Centers for Disease Control and Prevention (CDC)[3], the **attributes of the exposure** variables documented as risk factors for HIV infection in health-care workers included a deep injury (intramuscular), visible blood on device, and a procedure involving a needle placed directly in a vein or artery; for practical purposes, these three factors are probably markers for exposure to a large volume of infected blood. With respect to the **attributes of the source patient,** those exposures to blood containing a high titer of HIV (i.e., acute retroviral illness or end-stage AIDS) had a significantly higher risk of HIV infection than exposures to blood containing low titers of HIV (asymptomatic, known low titer).

In classifying the occupational exposure into risk categories, the CDC uses both the exposure and source patient attributes in its definition - having BOTH larger volume of blood and blood containing a high titer of HIV have the highest risk; increased risk is when there has been EITHER large volume of blood or blood with a high titer of HIV; no increased risk is having NEITHER exposure to large volume of blood nor blood from a high titer of HIV[1]. For those at unknown risk, either because the source patient cannot be identified or the HIV status of the source patient might be in the window phase, a risk category will need to be decided on a case by case basis using the known attributes of exposure and local available background HIV prevalence data in conjunction with the guidance of an expert consultant. Documenting the exposure in an employee exposure risk assessment form is recommended so the exposure risk can be analyzed (see attachment #1).

Results from the case-control study suggest that zidovudine prophylaxis, when given early after exposure, can reduce the odds of infection by 79%[3]. However, due to the increasing prevalence of zidovudine resistance, the use of combination therapy becomes the standard of care for prophylaxis after exposure.

Because 99.7% of health-care workers who are exposed will not seroconvert[1], even without prophylactic treatment, treatment options must be safe, inexpensive and reflect the perspectives and needs of the exposed health care worker. Supportive counseling thus becomes a key ingredient in the management of the six month follow-up period.

Clinical evaluation should include a baseline medical history and physical examination as soon as possible after the exposure. The employee should be advised to report and seek medical evaluation for any acute febrile illness that occurs within 12 weeks after the exposure (NOTE: this is especially important now that recent data presented by Markovitz et al.[4] have shown that early aggressive treatment with zidovudine, lamivudine and ritanovir has potential for significantly reducing the circulating virus to undetectable levels). Such an illness- particularly one characterized by fever, rash, pharyngitis, or lymphadenopathy- may be indicative of recent HIV infection. During the first 6-12 weeks following the exposure, when most infected persons are expected to seroconvert, the exposed employee should be recommended to follow U.S. Public Health Service (PHS) recommendations for preventing transmission of HIV[5]. Appropriate precautions should be taken to prevent sexual partners from coming into contact with the blood, semen, or vaginal secretions of the employee. Abstention from sexual activity with another person is an option for eliminating sexually transmitted HIV disease, while use of condoms is a option for reducing the transmission of HIV. The employee should not share toothbrushes, razors or other items that could be contaminated with blood. The employee should also refrain from donating blood, plasma, body organs, other tissue, or semen during the follow up period.

After appropriate counseling and informed consent, serological evaluation should be performed. Blood for a baseline HIV test should be obtained from the exposed employee as soon as possible following the exposure. For those employees with a negative baseline test, repeat HIV testing should be done at 6 weeks, 12 weeks, and 6 months following exposure.[1]

The decision to start post-exposure prophylaxis should be based on the risk assessment of the attributes of exposure and the attributes of the source patient (see Table 1). Exposed individuals should be informed that (a) the knowledge about the efficacy and toxicity of post-exposure prophylaxis is limited; (b) for agents other than zidovudine, data are limited regarding toxicity in persons without HIV infection or who are pregnant; and © any or all drugs for post-exposure prophylaxis may be declined by the exposed employee. If a decision is made to implement postexposure prophylaxis, it should be initiated within 1-2 hours following exposure (the interval after which there is no benefit from post-exposure prophylaxis in humans is undefined). The recommended duration of post-exposure prophylaxis is 4 weeks.

Exposed health-care workers who express interest in prophylaxis but cannot make a rational decision often benefit from starting treatment and then reconsidering their options once they feel more objective or updated information becomes available. Special emphasis should be made to not delay the prophylaxis decision until better information becomes available or a clinic appointment can be arranged.

For exposed employees receiving post-exposure prophylaxis, drug toxicity monitoring is necessary. The employee should be questioned about and educated to report toxicities known to be associated with the medications used. Zidovudine (ZDV) used for post-exposure prophylaxis is generally well tolerated but can be associated with gastrointestinal symptoms, fatigue and headache.

In HIV infected adults, lamivudine (3TC) can cause gastrointestinal symptoms and in rare instances. pancreatitis. Indinavir (IDV) toxicity includes gastrointestinal symptoms, and usually after prolonged use, mild hyperbilirubinemia (10%) and kidney stones (4%); the latter may be limited by drinking 48 oz (1.5L) of fluid per 24- hour period, while the drug is taken. During the first 4 weeks of indinavir therapy, the reported incidence of kidney stones has only been 0.8%. The concurrent use of indinavir and certain other drugs, including some nonsedating antihistamines, is contraindicated.

Laboratory monitoring of drug toxicity consists of a baseline complete blood count, and renal and hepatic chemical function tests. These should be repeated two weeks after starting postexposure prophylaxis. If subjective or objective toxicity is noted, dose reduction or drug substitution should be considered with expert consultation. (See Table 2)

TABLE 1. Provisional Public Health Service recommendations for chemoprophylaxis after occupational exposure to HIV, by type of exposure and source material – 1996

Type of exposure	Source material*	Antiretroviral prophylaxis†	Antiretroviral regimen§
Percutaneous	Blood¶		
	Highest risk	Recommend	ZDV plus 3TC plus IDV
	Increased risk	Recommend	ZDV plus 3TC, = IDV**
	No increased risk	Offer	ZDV plus 3TC
	Fluid containing visible blood, other potentially infectious fluid†† , or tissue	Offer	ZDV plus 3TC
	Other body fluid (e.g., urine)	Not offer	
Mucous membrane	Blood	Offer	ZDV plus 3TC, = IDV**
	Fluid containing visible blood, other potentially infectious fluid††, or tissue	Offer	ZDV, ± 3TC
	Other body fluid (e.g., urine)	Not offer	
Skin, increased risk§§	Blood	Offer	ZDV plus 3TC, ± IDV**
	Fluid containing visible blood, other potentially infectious fluid†† or tissue	Offer	ZDV, ± 3TC
	Other body fluid (e.g., urine)	Not offer	

*Any exposure to concentrated HIV (e.g., in a research laboratory or production facility) is treated as percutaneous exposure to blood with highest risk.

†*Recommend*-Postexposure prophylaxis (PEP) should be recommended to the exposed worker with counseling (see text). Offer-PEP should be offered to the exposed worker with counseling (see text). Not offer-PEP should not be offered because these are not occupational exposures to HIV (1).

§Regimens: zidovudine (ZDV), 200 mg three times a day; lamivudine (3TC), 150 mg two times a day; indinavir (IDV), 800 mg three times a day (if IDV is not available, saquinavir may be used, 600 mg three times a day). Prophylaxis is given for 4 weeks. For full prescribing information, see package inserts.

¶*Highest* risk-BOTH larger volume of blood (e.g., deep injury with large diameter hollow needle previously in source patient's vein or artery, especially involving an injection of source-patient's blood) AND blood containing a high titer of HIV (e.g., source with acute retroviral illness or end-stage AIDS; viral load measurement may be considered, but its use in relation to PEP has not been evaluated). *Increased risk-EITHER* exposure to larger volume of blood OR blood with a high titer of HIV. No *increased risk-NEITHER* exposure to larger volume of blood NOR blood with a high titer of HIV (e.g., solid suture needle injury from source patient with asymptomatic HIV infection).

**Possible toxicity of additional drug may not be warranted (see text).

††Includes semen; vaginal secretions; cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids.

§§For skin, risk is increased for exposures involving a high titer of HIV, prolonged contact, an extensive area, or an area in which skin integrity is visibly compromised. For skin exposures without increased risk, the risk for drug toxicity outweighs the benefit of PEP.

Table 2 - Follow-up schedule for occupational exposure to HIV infection

Visit 1 (day 1)	Risk assessment, baseline HIV test, post-exposure prophylaxis decision. For those receiving post-exposure prophylaxis, baseline CBC, renal and hepatic function tests
Visit 2 (day 14)	For those receiving post-exposure prophylaxis, CBC, renal and hepatic function tests
Visit 3 (day 28)	Post-exposure prophylaxis therapy completed
Visit 4 (day 42)	HIV test (if previous test negative)
Visit 5 (day 84)	HIV test (if previous test negative)
Visit 6 (day 180)	HIV test (if previous test negative)

Table 3 - Administrative follow-up for HIV Occupational Exposure

1) "Person in charge"(PIC) fills out questionnaire to document exposure and source information.

2) PIC reviews prophylaxis information and lab follow up schedule

3) Employee accepts/declines prophylaxis

4) PIC arranges for Health District to dispense medication (initial supply) to employee

5) Employee referred to Primary Care Physician (PCP) for emergency follow-up and subsequent medication supply and lab work-up

6) PIC enrolls employee in CDC registry (888)PEP-4HIV (voluntary)

7) PIC closes employee record if no seroconversion has occurred after the 6 month visit. If seroconversion has occurred, PIC refers employee to the workman's compensation unit.

References

1. Update: provisional Public Health Service recommendations for chemoprophylaxis after occupational exposure to HIV. MMWR Morb Mortal Wkly Rep. 1996; 45:468-80.

2. Gerberding JL. Prophylaxis for Occupational Exposure to HIV. Ann Intern Med. 1996; 125:497-501.

3. Case-control study of HIV seroconversion in health-care workers after percutaneous exposures to HIV-infected blood-France, United Kingdom, and United States, January 1988-August 1994. MMWR Morb Mortal Wkly Rep. 1995; 44:929-33.

4. Markowitz, M. Treatment intervention in newly infected patients. Presented at XI International Conference on AIDS, Vancouver 10 July 1996.

5. Prevention of Acquired Immune Deficiency Syndrome (AIDS): Report of Inter-Agency Recommendations. MMWR Morb Mortal Wkly Rep. 1983;32:101-03.